(Catalog of Federal Domestic Assistance No. 97.022, ''Flood Insurance.'')

Dated: January 22, 2008.

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DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

49 CFR Part 571

[Docket No. NHTSA–2008–0015]

RIN 2127–AG51

Federal Motor Vehicle Safety Standards; Roof Crush Resistance

AGENCY: National Highway Traffic Safety Administration (NHTSA), Department of Transportation.

ACTION: Supplemental notice of proposed rulemaking (SNPRM).

SUMMARY: This document supplements NHTSA's August 2005 proposal to upgrade the Federal motor vehicle safety standard on roof crush resistance. We issued that proposal as part of a comprehensive plan for reducing the serious risk of rollover crashes and the risk of death and serious injury in those crashes.

In this document, we ask for public comment on a number of issues that may affect the content of the final rule, including possible variations in the proposed requirements. We are also announcing the release of the results of various vehicle tests conducted since the proposal and are inviting comments on how the agency should factor this new information into its final rule.

DATES: Comments must be received on or before March 17, 2008.

ADDRESSES: You may submit comments to the docket number identified in the heading of this document by any of the following methods:

- *Federal eRulemaking Portal:* go to *http://www.regulations.gov*. Follow the online instructions for submitting comments.
- *Mail:* Docket Management Facility, M–30, U.S. Department of Transportation, West Building, Ground Floor, Rm. W12–140, 1200 New Jersey Avenue, SE., Washington, DC 20590.
- *Hand Delivery or Courier:* West Building Ground Floor, Room W12–140, 1200 New Jersey Avenue, SE., between 9 a.m. and 5 p.m. Eastern Time, Monday through Friday, except Federal holidays.
- *Fax:* (202) 493–2251.

Regardless of how you submit your comments, you should mention the docket number of this document.

You may call the Docket Management Facility at 202–366–9826.

Instructions: For detailed instructions on submitting comments and additional information on the rulemaking process, see the Public Participation heading of the Supplementary Information section of this document. Note that all comments received will be posted without change to *http://www.regulations.gov*, including any personal information provided.

Privacy Act: Please see the Privacy Act heading under Rulemaking Analyses and Notices.

FOR FURTHER INFORMATION CONTACT:

For technical issues: Mr. Christopher Wiacek, Office of Rulemaking, National Highway Traffic Safety Administration, 1200 New Jersey Avenue, SE., Washington, DC 20590. Telephone: (202) 366–4801.

For legal issues: Mr. Edward Glancy, Office of the Chief Counsel, National Highway Traffic Safety Administration, 1200 New Jersey Avenue, SE., Washington, DC 20590. Telephone: (202) 366–2992.

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I. Introduction

On August 23, 2005, NHTSA published in the **Federal Register** (70 FR 49223) a notice of proposed rulemaking (NPRM) to upgrade Federal Motor Vehicle Safety Standard (FMVSS) No. 216, *Roof Crush Resistance*.[1] As discussed in the NPRM, this ongoing rulemaking is part of a comprehensive plan for reducing the serious risk of rollover crashes and the risk of death and serious injury in those crashes. In addition to roof crush, other strategies in the comprehensive approach include crash-avoidance initiatives such as electronic stability control which will significantly reduce the number of rollovers, as well as crashworthiness efforts such as ejection mitigation and improved door lock strength which will lower the probability of ejection when rollovers do occur.

A. Overview of Standard 216

FMVSS No. 216 seeks to reduce deaths and serious injuries resulting from the roof being crushed and pushed into the occupant compartment when the roof strikes the ground during rollover crashes. The standard currently applies to passenger cars, and to multipurpose passenger vehicles, trucks and buses with a GVWR of 2,722 kilograms (6,000 pounds) or less.

The standard requires that when a large steel test plate (sometimes referred to as a platen) is placed in contact with the roof of a vehicle and then pressed downward, simulating contact of the roof with the ground during a rollover crash, with steadily increasing force until a force equivalent to 1.5 times the unloaded weight of the vehicle is reached, the distance that the test plate has moved from the point of contact must not exceed 127 mm (5 inches). The criterion of the test plate not being permitted to move more than a specified amount is sometimes referred to as the ''platen travel'' criterion. Under S5 of the standard, the application of force is limited to 22,240 Newtons (5,000 pounds) for passenger cars, even if the unloaded weight of the car times 1.5 is greater than that amount.

B. Target Population of Standard 216

Due to the complex nature of a rollover event and the particularized effect of each element of the comprehensive and systematic approach taken by the agency to address these crashes, each element addresses a specific segment of the total rollover problem.

Table 1 below shows the target population that could potentially benefit from roof crush improvements.[2] The target population for all light vehicles is stratified by injury severity. The table demonstrates how the final target population is derived from the broad category of rollovers by

[1] Docket No. NHTSA–2005–22143.

[2] The target population reflects a very minimal incorporation of ESC in the vehicle fleet. As discussed later in this SNPRM, the final regulatory analysis will be adjusted to reflect full incorporation of ESC into the vehicle fleet. ESC will significantly reduce the number of rollover fatalities, and further reduce the roof crush target population.

eliminating cases in which roof strength improvements would not be effective. The final target populations are shown in bold at the bottom of the table. Numbers in the table shown in parenthesis are deducted from previous values to arrive at the final target population shown in bold. All other numbers represent the values that result from the restrictions noted in the left column. A full discussion of the basis for the target population is included in the August 2005 Preliminary Regulatory Impact Analysis (PRIA).

One modification to that basis should be noted. In the PRIA, it was assumed that in cases in which there were fatal injuries which involved both the head and another body region at the highest MAIS level, the head injury was the cause of death. More recent analysis indicates that only about ⅔'s of these deaths were attributable to the head injury. Based on this, the ''not sole injury'' category for fatalities was adjusted to reflect the assumption that 67% of these cases would be attributed to head injury, leaving a total of 476 fatalities as the final target population applicable for roof crush.

TABLE 1.—TARGET POPULATION POTENTIALLY AFFECTED BY IMPROVED ROOF STRENGTH

	AIS 1	AIS 2	AIS 3–5	Fatalities
Non-Convertible Light Vehicles in Rollovers	199,549	37,661	21,933	9,011
Roof-Involved Rollover	164,007	32,862	19,520	7,679
No Fixed Object Collision on Top	153,324	29,346	18,029	6,712
Not Totally Ejected	149,632	25,949	12,638	3,227
Using Safety Restraints	116,135	14,234	9,204	1,835
Front Outboard Seats	103,320	13,457	8,653	1,658
Not 12 Years Old or Younger	101,581	13,418	8,635	1,650
Roof Component Intrusion	64,123	10,339	6,747	1,125
Head, Neck, or Face Injury from Intruding Roof Component	23,147	6,508	3,027	731
Injury—Not MAIS*	(0)	(1,872)	(1,382)	(209)
Injury at MAIS—Not Sole Injury	(17,128)	(289)	(250)	(46)
Sole MAIS Injury	6,019	4,346	1,395	476

*This means that the most serious injury was to a portion of the body other than the head, neck or face.

The target population relevant to FMVSS No. 216 in Table 1 is thus a relatively small subset of the occupants injured in rollovers. For fatalities, the estimated total for the target population is 5 percent of all non-convertible light vehicle rollover fatalities (476/9,011). For nonfatal injury categories, the estimated total ranges from 3 to 12 percent. The most significant exclusions resulted from requirements that fatalities occurred in rollovers in which (1) the roof was damaged in a rollover, (2) the damage was not caused by collision with a fixed object, (3) the fatally injured occupants were not ejected, and (4) those occupants were belted.

It is important to understand what this Table indicates about the safety potential of addressing roof crush. Even if there were some way to prevent every single rollover death resulting from roof crush, the total lives saved would be 476, not the approximately 10,000 deaths that result from rollover each year. This is why each initiative in NHTSA's comprehensive program to address the different aspects of the rollover problem is so important. Each initiative has a different target population. We have initiatives in place to:

1. Reduce the occurrence of rollover crashes (e.g., the requirement for Electronic Stability Control on all light vehicles and the NCAP rollover ratings),

2. Keep occupants inside the vehicle when rollovers occur (e.g., NHTSA's unstinting commitment to get passengers to buckle their seat belts every time they ride in a vehicle, as well as the requirement for enhanced door latches and the forthcoming new requirement for ejection mitigation), and

3. Better protect the occupants kept inside the vehicle during the rollover (this rule to require enhanced roof crush resistance).

Each of these three initiatives must work together to address the various aspects of the rollover problem. However, it is important to understand which portion of the rollover problem can be addressed by each of these three initiatives, so that there is a clear and correct understanding of the safety benefits potentially associated with each of the different types of actions to reduce rollover deaths and injuries.

C. Summary of 2005 Proposal

To better address fatalities and injuries occurring in roof-involved rollover crashes, we proposed in 2005 to extend the application of the standard to vehicles with a GVWR of up to 4,536 kilograms (10,000 pounds), and to strengthen the requirements of FMVSS No. 216 by mandating that the vehicle roof structures withstand a force equivalent to 2.5 times the unloaded vehicle weight, and eliminating the 22,240 Newtons (5,000 pounds) force limit for passenger cars. Further, in recognition of the fact that the pre-test distance between the interior surface of the roof and a given occupant's head varies from vehicle model to vehicle model, we proposed to regulate roof strength by requiring that the crush not exceed the available headroom. Under the proposal, this requirement would replace the current limit on test plate movement.

The proposed new limit would prohibit any roof component from contacting the head of a seated 50th percentile male dummy when the roof is subjected to a force equivalent to 2.5 times the unloaded vehicle weight. We note that this value is sometimes referred to as the strength-to-weight ratio (SWR), e.g., a SWR of 1.5, 2.5, and so forth.

D. Purpose of This SNPRM

The agency has been carefully analyzing the numerous comments it received on its proposal. In addition, it has been analyzing the various additional vehicle tests, including both single-side tests and two-sided tests,[3] conducted since the NPRM. In this document, we are inviting comments on how the agency should factor this new information into its decision. While the NPRM focused on a specified force equivalent to 2.5 times the unloaded vehicle weight, the agency could adopt

[3] Note that in the most recent agency testing, headroom reduction had been assessed using a head positioning fixture in lieu of a 50th percentile dummy. Reports on these tests explain the procedure and type of fixture used to assess headroom reduction. (As explained elsewhere in this document, these test reports are being made available to the public through the agency's internet vehicle crash test database.) Please note further that the agency is considering whether this fixture should be specified in the final rule.

a higher or lower value for the final rule. With respect to two-sided vehicle testing, we believe that, with the additional tests conducted by the agency, there is now sufficient available information for the agency to consider a two-sided requirement as an alternative to the single-sided procedure described in the NPRM. The agency plans to evaluate both the single-sided and two-sided testing alternatives for the final rule. We are requesting comments that will help us reach a decision on that issue.

In developing a final rule, the agency will consider the comments submitted on both the August 2005 NPRM and this document. Thus, there is no need for persons to re-submit the comments they provided for the NPRM. We note that we are generally not discussing the comments in this document, except for a few brief references that are relevant to the potential economic impact of our proposal. We also note that the proposed regulatory text in this document includes both the single-sided and two-sided test requirement alternatives. The fact that the proposed regulatory text for the two alternatives does not reflect other changes suggested by commenters on the NPRM does not mean that we will not consider those recommended changes in developing a final rule.

We are providing a 45-day comment period. We believe this is appropriate given that this is an SNPRM with a more limited focus than the NPRM, and given the need to comply with a statutory deadline.

II. Release of Vehicle Test Results

The test reports for the additional vehicle tests conducted by NHTSA are being made available to the public through the agency's internet vehicle crash test database. We are placing a memorandum in the docket which provides the Web address for that database and lists the vehicle models and test numbers that are needed to reference the information in the database. The agency incorporates by reference these test reports as part of the record for this rulemaking.

A. Single-Sided Tests

Since the publication of the NPRM, the agency has conducted 35 additional single-sided tests. In this testing, the force was applied to one side of the roof over the front seat area. Force was applied until there was 127 mm (5 inches) of platen travel, unless head contact occurred first. The strength of the roof was measured prior to any subsequent testing the agency may have conducted on the second side. The agency is releasing these data to the public in conjunction with this document.

A summary of the test results is presented in the Table 2 below.

TABLE 2.—SINGLE-SIDED TEST RESULTS

Vehicle	Unloaded vehicle weight (kg)	Peak strength within 127 mm		Peak strength prior to head contact		Platen displacement at head contact (mm)
		N	SWR	N	SWR	
2006 VW Jetta	1,443	72,613	5.1	72,613	5.1	158
2007 Scion tC	1,326	59,749	4.6	59,749	4.6	113
2006 Volvo XC90	2,020	90,188	4.6	N/A	N/A	N/A
2006 Honda Civic	1,251	55,207	4.5	55,207	4.5	177
2007 Toyota Tacoma	1,489	64,441	4.4	64,441	4.4	123
2006 Mazda 5	1,535	66,621	4.4	66,621	4.4	155
2007 Toyota Camry	1,468	62,097	4.3	62,097	4.3	N/A
2007 Toyota Yaris	1,038	41,073	4	41,073	4	115
2006 Ford 500	1,657	63,181	3.9	63,181	3.9	150
2007 Nissan Frontier	1,615	62,828	3.9	62,828	3.9	167
2006 Subaru Tribeca	1,907	72,306	3.9	72,306	3.9	112
2006 Mitsubishi Eclipse	1,485	51,711	3.6	51,711	3.6	127
2006 Hummer H3	2,128	70,264	3.4	70,264	3.4	185
2006 Hyundai Sonata	1,505	46,662	3.2	46,662	3.2	131
2007 Dodge Caravan	1,759	52,436	3	52,436	3	N/A
2006 Chrysler Crossfire	1,357	38,179	2.9	38,179	2.9	107
2004 Honda Accord	1,413	38,281	2.8	38,281	2.8	140
2007 Saturn Outlook*	2,133	57,222	2.7	57,222	2.7	N/A
2006 Ford Mustang	1,527	40,101	2.7	41,822	2.8	132
2005 Buick Lacrosse	1,590	40,345	2.6	40,345	2.6	126
2006 Sprinter Van*	1,946	49,073	2.6	N/A	N/A	N/A
2004 Cadillac SRX	1,961	50,346	2.6	50,346	2.6	138
2007 Honda CRV	1,529	38,637	2.6	38,637	2.6	N/A
2007 Chrysler 300	1,684	41,257	2.5	41,257	2.5	N/A
2005 Buick Lacrosse	1,588	37,196	2.4	37,196	2.4	123
2006 Honda Ridgeline	2,036	47,334	2.4	47,334	2.4	172
2007 Ford F–150*	2,413	54,829	2.3	54,829	2.3	N/A
2007 Buick Lucerne	1,690	38,268	2.3	38,268	2.3	N/A
2004 Chevrolet 2500 HD*	2,450	55,934	2.3	56,294	2.3	171
2007 Pontiac G6	1,497	33,393	2.3	33,393	2.3	124
2007 Chevrolet Express*	2,471	55,038	2.3	55,038	2.3	N/A
2007 Jeep Grand Cherokee	1,941	41,582	2.2	41,582	2.2	117
2007 Chevrolet Tahoe*	2,462	49,878	2.1	49,878	2.1	N/A
2006 Dodge Ram*	2,287	37,596	1.7	42,578	1.9	158
2003 Ford F–250*	2,658	44,776	1.7	44,776	1.7	205

*GVWR greater than 6,000 pounds

We observed from this recent testing that the range of SWRs for vehicles with a GVWR of 6,000 pounds (2722 kilograms) or less tended to be higher than the range of SWRs for vehicles with a GVWR greater than 6,000 pounds (2722 kilograms). The SWR of many late model vehicles with a GVWR of 6,000 pounds (2722 kilograms) or less was substantially higher than the 2.5 value the agency focused on in the NPRM. Conversely, only two vehicles we tested with a GVWR greater than 6,000 pounds (2722 kilograms) exceeded the 2.5 value.

We note that the data presented in these tables do not factor in the full spectrum of weight ranges for the models tested. The SWR for each model was calculated using the unloaded vehicle weight (UVW) of the tested vehicle rather than the maximum vehicle weight. In comments on the NPRM, manufacturers said that vehicles would have to be designed to comply in their maximum weight configuration. NHTSA agrees with this comment and will reflect maximum weight configurations in the final rule analysis.

We request comments on any other steps the agency should take in factoring these new test data into its decisions for the final rule.

B. Two-Sided Tests

In the NPRM, the agency summarized the testing it had conducted to evaluate the strength of the second side of the roof of vehicles whose first side had already been tested. In this testing, after the force was applied to one side of the roof over the front seat area of a vehicle, the vehicle was repositioned and force was then applied on the opposite side of the roof over the front seat area. In performing these tests on both sides of a vehicle, the agency used the platen angle currently specified in FMVSS No. 216 (5° × 25°). We concluded that the strength of the roof on the second side of some vehicles may have been increased or decreased as a result of the deformation of the first side of the roof. The agency indicated that it planned to conduct further research before proposing rulemaking in this area.

The agency has expanded the series of two-sided roof crush tests discussed in the NPRM. The agency has now conducted a total of 26 sequential two-sided tests, as part of its evaluation, and is also releasing these data to the public in conjunction with this document.

A summary of the test results is presented in the following Table 3.

TABLE 3.—RESULTS OF 2-SIDED TESTING (5° × 25° PLATEN ANGLE)

Vehicle	Peak SWR prior to 127 mm of platen travel or head contact		Peak force change (percent)
	1st side	2nd side	
2007 Chevrolet Express[4]	2.3	1.7	−27.3
2007 Jeep Grand Cherokee	2.2	1.6	−27.1
2007 Pontiac G6	2.3	1.7	−23.8
2005 Lincoln LS*	2.6	2.0	−21.3
2007 Saturn Outlook	2.7	2.2	−20.8
2003 Ford Crown Victoria*	2.0	1.7	−19.5
2007 Ford F–150	2.3	1.9	−19.0
2007 Chevrolet Tahoe	2.1	1.7	−16.4
2007 Toyota Yaris	4.0	3.4	−15.8
2005 Buick LaCrosse	2.6	2.2	−13.5
2007 Toyota Tacoma	4.4	3.9	−12.2
2007 Buick Lucerne	2.3	2.1	−10.8
2003 Chevrolet Impala*	2.9	2.5	−9.9
2004 Lincoln LS*	2.5	2.2	−8.7
2006 Subaru Tribeca	3.9	3.5	−8.3
2007 Scion tC	4.6	4.3	−6.7
2006 Chrysler Crossfire	2.9	2.7	−5.6
2007 Dodge Caravan	3.0	2.9	−5.3
2007 Honda CRV	2.6	2.5	−4.9
2005 Buick LaCrosse	2.4	2.3	−3.4
2004 Nissan Quest*	2.8	2.7	−3.0
2001 GMC Sierra*	1.9	1.9	−1.3
2007 Chrysler 300	2.5	2.5	1.6
2004 Chrysler Pacifica*	2.2	2.4	7.0
2007 Toyota Camry	4.3	4.7	9.0
2004 Land Rover Freelander*	1.7	2.0	19.2

*Crush of first side stopped at windshield cracking.

[4]Between the first and second side tests, the front door on the tested side was opened. Because of damage to the vehicle during the first side test, the door would not properly close. The door was clamped until the latch engaged, locking the door in place. This may have compromised the structural integrity of the roof and reduced the measured peak load on the second side.

For the first eight tests (those with asterisks in the table), testing of the first side of the vehicle was conducted until the windshield cracked. This occurred between 90 and 100 mm (3.54 and 3.94 inches) of platen travel for all vehicles except the Nissan Quest which required 135 mm (5.31 inches) of platen travel before the windshield cracked. The second side was then tested for 254 mm (10 inches) of platen travel. For all other tests, the first side was conducted to 127 mm (5 inches) of platen travel unless head contact occurred first. The second side was then tested for 254 mm (10 inches) of platen travel. We note that in all 26 tests, the windshield cracked before completion of the first side test. In the first eight tests, the peak SWR was recorded at the time the windshield cracked on the first side. For all other testing, the SWR was recorded prior to 127 mm (5 inches) of platen travel or prior to head contact, whichever occurred first.

The two-sided test results show that the first side test generally produces a weakening of the structure. This is

shown by the fact that the recorded SWR for the second side is generally lower than for the first side. On average, the peak strength for the second side was reduced by 8.7 percent. However, for several of the vehicles, we observed considerably higher reductions in peak strength. Of the 25 vehicles tested, excluding the Chevrolet Express, six experienced reductions in strength of 19 percent or greater.

With respect to two-sided vehicle testing, we believe that the post-NPRM tests provide the agency with sufficient additional information for the agency to now consider a two-sided test requirement for the final rule. However, as discussed in the following sections, the agency seeks comment on the relative trade offs between the single-sided and two-sided test procedures.

III. Discussion

Based upon the results of the testing described above, the agency is contemplating various alternatives for a final rule. Each of the alternatives will directly affect the current fleet failure rate estimates, vehicle design changes and vehicle content necessary to meet those alternatives, and consequent benefits and costs. The agency has not completed cost/benefit analyses for these various alternatives, however, the agency will ensure that its decisions about these alternatives result in a final rule that is cost beneficial, as contemplated by Executive Order 12866.

Public comments submitted in response to the NPRM and research conducted by NHTSA indicate some general conclusions that can be drawn regarding the directional impact of these alternatives, as well as subsequent changes in vehicle content and other factors that may influence the final rule.

The August 2005 PRIA examined the proposed SWR of 2.5 and the alternative SWR of 3.0 times the unloaded vehicle weight. Estimated costs ranged from $88 to 95 million for the 2.5 SWR alternative and $1.2 to $1.3 billion for the 3.0 SWR alternative. Benefits were estimated to be 13 to 44 fatalities and 498 to 793 nonfatal injuries prevented for the 2.5 alternative, and 49 to 135 fatalities and 1540 to 2151 nonfatal injuries prevented for the 3.0 alternative. The estimated impacts of the final rule will be changed by a number of factors. These include:

A. Pass/Fail Rate of the Vehicle Fleet

In response to the NPRM, manufacturers commented that NHTSA's estimates underestimated the portion of the vehicle fleet that would require changes. The manufacturers noted that NHTSA's estimates were based on individual vehicles' actual weights, but that manufacturers would have to design roof structures to meet the maximum weight that each body design would be required to carry. Thus, for example, test results from a vehicle with a four-cylinder engine and manual transmission might not be indicative of the same vehicle with a six-cylinder engine and automatic transmission option, even though they share the same body design and roof structure. The agency agrees with this comment and will make appropriate adjustments in its revised analysis for the final rule. In the NPRM, the agency estimated that 32 percent of the vehicle fleet would have to be changed to meet the 2.5 proposal, whereas manufacturers commented that the portion was over 80 percent. Based on the agency's testing, more recent vehicle designs tested appear to have stronger roofs. Therefore, it is not yet clear what the actual failure rate will be. However, at this time, it appears likely that the impact of this adjustment will be to increase both the costs and benefits of the rule.

B. Impact of Electronic Stability Control Safety Standard on Potential Benefits

The PRIA for the August 2005 NPRM to amend FMVSS No. 216 examined the model year (MY) 2005 fleet. During MY 2005, Electronic Stability Control (ESC) was voluntarily installed on roughly 18% of the new light vehicle fleet, and the PRIA took this into account.

However, NHTSA published a proposal in September 2006 and a final rule [5] in April 2007 requiring ESC on 100% of passenger cars and of light trucks, multipurpose passenger vehicles, and vans (LTVs), effective September 1, 2011. Therefore, the FRIA for the final rule upgrading FMVSS No. 216 will adjust the target population for this rulemaking to reflect the ESC mandate. Since ESC is a highly effective countermeasure, preventing roughly half of all rollovers in passenger cars and LTVs, this adjustment will significantly reduce both the target population and the safety benefits associated with FMVSS No. 216.

C. Revised Cost and Weight Estimates

In the PRIA, NHTSA based its cost estimates on 4 vehicles: The 1997 Plymouth Neon, the 1999 Ford E–150 Van, the 1997 Dodge Caravan, and the 1998 Chevrolet S–10 pickup. These vehicles were used because they were the only vehicles for which the agency had finite element models which could be used to simulate the impact of roof design changes on roof strength. The agency used these vehicles to impute costs for the overall fleet based on the relative roof strength of a sample of tested vehicles. A similar procedure was used for vehicle weight changes. The PRIA estimated that the average cost per affected vehicle would be approximately $11 to meet the 2.5 SWR alternative and $51 for the 3.0 SWR alternative, with individual model costs as high as $16 for the 2.5 alternative and $84 for the 3.0 alternative. The PRIA also estimated average weight increases ranging from 2 to 14 kilograms (4 to 30 pounds). Weight is a factor in the analysis because it influences both fuel economy, and the vehicle's center of gravity which can influence the vehicle's tendency to roll over.

In response, the Alliance of Automobile Manufacturers (Alliance) submitted an analysis of costs and weights for 2 vehicle types—a large SUV and a large pickup truck.[6] The Alliance estimates were based on engineering studies from a variety of manufacturers and represented a range of results for each vehicle type. The Alliance estimated that variable unit costs for a large SUV would range from $38 to $58 to meet a 2.5 SWR alternative, $60 to $90 to meet a 3.0 SWR alternative and $110 to $130 to meet a 3.5 SWR alternative. Based on NHTSA cost studies, total costs including overhead, markup and profit could be 50 percent higher than these variable costs. The Alliance estimated the corresponding weight increases for these scenarios to be 27 to 30 kilograms (60 to 67 pounds) for the 2.5 SWR, 68 to 122 kilograms (150 to 270 pounds) for the 3.0 SWR, and 113 to 245 kilograms (250 to 540 pounds) for the 3.5 SWR. For the large pickup truck the Alliance estimated that variable unit costs would range from $55 to $185 to meet a 2.5 SWR alternative, $100 to $200 to meet a 3.0 SWR alternative and $165 to $525 to meet a 3.5 SWR alternative. The Alliance estimate for corresponding weight increases for these scenarios were 17 to 31 kilograms (38 to 68 pound) for the 2.5 SWR, 39 to 118 kilograms (85 to 260 pounds) for the 3.0 SWR, and 54 to 236 kilograms (120 to 520 pound) for the 3.5 SWR.

The Alliance also contracted an independent study by Magna Steyr on the feasibility of modifying a crew cab pickup for compliance with the NPRM proposal (2.5 SWR). The study concluded that meeting the proposal in a 3-year lead time was feasible, but would add 33 kilograms (73 pounds) and $76 to $98 in variable costs. It also found that if enough leadtime were

[5] 66 FR 17236.

[6] *See* Docket No. NHTSA–2005–22143–249.

provided to allow implementation during a new production cycle, higher strength materials were feasible in conjunction with new tooling and this could result in a 5 kilogram (11 pound) savings in weight relative to the base vehicle. The Alliance data represent industry estimates of costs and weight impacts for the two types of vehicles—large SUVs and large pickup trucks—for which higher SWRs are likely to pose the most difficult challenges and result in the largest cost and weight penalties. However, these types of vehicles represent only a small portion of new vehicle sales (approximately 9 percent) and their design challenges are unlikely to be representative of the bulk of the vehicle fleet. The Alliance did not provide estimates for other vehicle types—passenger cars, light pickups, crossover SUVs, etc. The agency believes that meeting a higher SWR may be significantly easier for the vehicle types not submitted by the Alliance based upon our fleet results. The agency will consider the Alliance estimates and results from its own research when developing the Final Regulatory Impact Analysis, but at this time it is unclear whether unit costs will change significantly for vehicles other than large pickups and large SUVs.

The agency has also conducted additional tear down studies. A study [7] conducted by The Ohio State University examined the Volvo XC90 and the Ford Explorer. The study found that the XC–90 roof had roughly ⅓ more structural parts than the Explorer, and that implementing some of the XC–90 design concepts in the Ford Explorer would increase material and tooling costs by $81 and weight by 15 kilograms (33 pounds). Additional work based on finite element models and cost teardown studies conducted by Ludtke Associates and the National Crash Analysis Center [8] found that strengthening the 2003 Ford Explorer to 3.0 SWR would raise the vehicle's price by $33 to $35 and increase its weight by 5 to 10 kilograms (10 to 23 pounds). They also examined a 2000 Ford Taurus. The study indicated that raising the Taurus to a 3.0 SWR would increase its price by $175 to $204, and increase its weight by 7 to 12 kilograms (15 to 27 pounds).

D. Two-Sided Testing Implications

The two-sided testing conducted by NHTSA thus far indicate an average difference of approximately 8 percent lower peak force for the second side in vehicles under 2,722 kilograms (6,000 pounds) GVWR [9] and 17 percent lower peak force for the second side in vehicles over 2,722 kilograms (6,000 pounds) GVWR.[10] Thus, the adoption of a two-sided alternative would result in some increase in the portion of the fleet that would fail the roof crush requirements beyond the portion estimated in the NPRM. This would increase the benefits as well as the costs of this rulemaking.

We have conducted an analysis to examine the relative impact of one-sided testing vs. two-sided testing, based primarily on the results of the agency's own FMVSS No. 216 testing program. Since the publication of the October 2001 request for comment (66 FR 53376), the agency has conducted roof strength testing on 69 vehicles. Although these tests were conducted on specific vehicles, for this exercise, the results were adjusted to reflect the maximum unloaded vehicle weight configuration for each make/model. The agency tested 21 vehicles with GVWRs less than 2,722 kilograms (6,000 pounds) under a two-sided test regime. Eleven of these vehicles passed a 2.5 SWR on both the first and second side tested. Only five vehicles passed a 3.0 SWR on both sides and only four passed a 3.5 SWR. The agency also conducted two-sided tests on five vehicles with GVWRs over 2,722 kilograms (6,000 pounds). None of these vehicles passed a 2.5 or greater SWR. The agency also has single-sided testing data on 32 vehicles with GVWRs less than 2,722 kilograms (6,000 pounds) and 11 vehicles with GVWRs over 2,722 kilograms (6,000 pounds).

The roof strength results for this sample of 69 vehicles were then sales weighted to estimate the relative pass-fail rates that might result for single-sided and two-sided test procedure alternatives. The estimates show nearly 100 percent of vehicles over 2,722 kilograms (6,000 pounds) GVWR failed under all scenarios. The vehicles with GVWR under 2,722 kilograms (6,000 pounds) had higher failure rates for the two-sided tests when compared to the single-sided procedure. At a SWR of 2.5, the lighter vehicles are estimated to have a failure rate of 45 percent for single-sided and 67 percent for two-sided tests. The failure rate increases with higher SWR scenarios. A summary of the results is presented in the following Table 4.

TABLE 4.—ESTIMATED FLEET FAILURE RATES BASED ON GVWR

GVWR	2.5 SWR	3.0 SWR	3.5 SWR
Two-Sided Testing			
< 2,722 kg GVWR	67.2%	78.6%	85.0%
> 2,722 kg GVWR	100.0%	100.0%	100.0%
Total	75.1%	83.7%	88.6%
Single-Sided Testing			
< 2,722 kg GVWR	44.5%	76.9%	80.9%
> 2,722 kg GVWR	98.9%	100.0%	100.0%
Total	57.6%	82.5%	85.5%

[7] Available in the docket of this notice: Hutter, Erin E., ''Improving Roof Crush Performance of a Sport Utility Vehicle,'' The Ohio State University, 2007.

[8] Available in the docket of this notice: ''Cost, Weight, and Lead Time Analysis Roof Crush Upgrade,'' Task Order No. 007.

[9] Refers to vehicles with a GVWR equal to or less than 2,722 kilograms (6,000 pounds).

[10] Refers to vehicles with a GVWR greater than 2,722 kilograms (6,000 pounds).

E. Other Factors

In the NPRM, the agency estimated benefits based on post-crash headroom, the only basis for which a statistical relationship with injury reduction had been established. In that analysis, the agency estimated that the proposed 2.5 SWR requirement would prevent 13 to 44 fatalities.[11]

More recently, the agency has estimated benefits based on the relationship between intrusion and the probability of injury. This relationship was not established when the NPRM was published, but with the additional years of data available, a statistically significant relationship between intrusion and injury for belted occupants has since been established. A study regarding this relationship has undergone peer review and is available in the docket.[12] This broader relationship, together with other factors, including the higher failure rates resulting from adjustments for maximum vehicle weight and the higher effective SWRs that result from this same issue will likely lead to slightly higher benefits than was estimated in the NPRM.

In the NPRM, NHTSA estimated the cost of meeting the proposed 2.5 SWR single-sided test requirement at $16–$17 [13] for vehicles that do not already meet the standard, consisting of roughly $11 for design changes and $5–$6 for added lifetime fuel consumption.

The agency believes that these cost estimates may increase for several reasons. The first is that manufacturers stated that vehicle body platforms must be designed to their heaviest possible design configuration. This means that a body platform that supports several different engine, transmission, and suspension options must be strong enough to pass the test requirements under the maximum weighted combination of these options. This could increase the effective SWR of the entire body platform and this would increase the average cost and weight impact of the required design changes. This would primarily be an issue for large trucks and SUVs, which are designed with a wide range of optional performance packages. It would be much less of a factor for passenger cars.

A second reason costs might rise is that predicted gasoline prices may be higher than prices predicted in the NPRM. The NPRM fuel cost estimates were based on forecasts from the Energy Information Administration (EIA), which predicted an average pump price of roughly $1.46/gallon (2002 dollars) in 2007. The final rule will be based on EIA's latest predictions. It is expected that EIA's predictions will be higher than its earlier ones.

A third reason costs may rise is that the cost estimates NHTSA used for the NPRM assumed single-sided tests. For the two-sided testing program alternative, the agency found an average difference of approximately 8–17 percent lower peak force for the second side (depending on vehicle weight class). Thus, some vehicle designs may need added strengthening to meet a two-sided test relative to a single-sided test.

Regardless of which alternative is adopted in the final rule, the agency will ensure that the final rule is cost beneficial, as contemplated by Executive Order 12866.

IV. Comments Sought

The agency requests comments on the costs of meeting the single-sided and two-sided testing alternative requirements for different types of vehicles for the proposed SWR of 2.5, as well as the alternatives of 3.0 and 3.5.

1. In the single-sided test results, the agency observed that vehicles under 6,000 pounds achieved higher SWR levels than did those vehicles over 6,000 pounds. Should the agency consider different stringency requirements for vehicles according to their weight class? Will different design strategies be necessary to meet the requirements for vehicles under or over 6,000 pounds? What are the cost implications associated with different stringency requirements and different design strategies?

2. In the agency's two-sided testing, an average reduction of about 8% was observed in the second side SWR compared to the first side for vehicles under 6,000 pounds, compared to an average 17% reduction for those over 6,000 pounds. Table 4 also indicates a much higher failure rate for two-sided testing compared to a single-sided requirement, and appears to indicate that fleet failure rates (and consequently benefits) for a two-sided test at a 2.5 SWR would be comparable to a single-sided test at a higher SWR. What are the relative costs associated with, for example, a two-sided requirement at 2.5 SWR versus a single-sided test at 3.0 SWR? If comparable benefits can be achieved with a single-sided test at a higher SWR requirement compared to a two-sided test at a lower SWR level, are there other considerations the agency should include in the FRIA?

3. If a two-sided alternative is pursued in the final rule, will different design strategies be required to meet the requirements for vehicles under or over 6,000 pounds? What are the cost implications associated with these strategies?

V. Public Participation

How Do I Prepare and Submit Comments?

Your comments must be written and in English. To ensure that your comments are correctly filed in the Docket, please include the docket number of this document in your comments. Your comments must not be more than 15 pages long.[14] We established this limit to encourage you to write your primary comments in a concise fashion. However, you may attach necessary additional documents to your comments. There is no limit on the length of the attachments.

Please submit your comments by any of the following methods:

- *Federal eRulemaking Portal:* go to *http://www.regulations.gov.* Follow the online instructions for submitting comments.
- *Mail:* Docket Management Facility, M–30, U.S. Department of Transportation, West Building, Ground Floor, Rm. W12–140, 1200 New Jersey Avenue, SE., Washington, DC 20590.
- *Hand Delivery or Courier:* West Building, Ground Floor, Room W12–140, 1200 New Jersey Avenue, SE., between 9 a.m. and 5 p.m. Eastern Time, Monday through Friday, except Federal holidays.
- *Fax:* (202) 493–2251.

If you are submitting comments electronically as a PDF (Adobe) file, we ask that the documents submitted be scanned using Optical Character Recognition (OCR) process, thus allowing the agency to search and copy certain portions of your submissions.[15]

Please note that pursuant to the Data Quality Act, in order for substantive data to be relied upon and used by the agency, it must meet the information quality standards set forth in the OMB and DOT Data Quality Act guidelines. Accordingly, we encourage you to consult the guidelines in preparing your comments. OMB's guidelines may be accessed at *http://www.whitehouse.gov/omb/fedreg/reproducible.html.* DOT's guidelines may be accessed at *http://*

[11] This range reflects two different methodologies that were examined.

[12] Available in the docket of the notice: Strashny, Alexander, ''The Role of Vertical Roof Intrusion and Post-Crash Headroom in Predicting Roof Contact Injuries to the Head, Neck, or Face during FMVSS 216 Rollovers.''

[13] Under a 7% and 3% discount rate, respectively.

[14] *See* 49 CFR 553.21.

[15] Optical character recognition (OCR) is the process of converting an image of text, such as a scanned paper document or electronic fax file, into computer-editable text.

dmses.dot.gov/submit/DataQualityGuidelines.pdf.

How Can I Be Sure That My Comments Were Received?

If you submit your comments by mail and wish Docket Management to notify you upon its receipt of your comments, enclose a self-addressed, stamped postcard in the envelope containing your comments. Upon receiving your comments, Docket Management will return the postcard by mail.

How Do I Submit Confidential Business Information?

If you wish to submit any information under a claim of confidentiality, you should submit three copies of your complete submission, including the information you claim to be confidential business information, to the Chief Counsel, NHTSA, at the address given above under **FOR FURTHER INFORMATION CONTACT.** When you send a comment containing information claimed to be confidential business information, you should include a cover letter setting forth the information specified in our confidential business information regulation.[16]

In addition, you should submit a copy, from which you have deleted the claimed confidential business information, to the Docket by one of the methods set forth above.

Will the Agency Consider Late Comments?

We will consider all comments received before the close of business on the comment closing date indicated above under **DATES.** To the extent possible, we will also consider comments received after that date. Therefore, if interested persons believe that any new information the agency places in the docket affects their comments, they may submit comments after the closing date concerning how the agency should consider that information for the final rule.

If a comment is received too late for us to consider in developing a final rule (assuming that one is issued), we will consider that comment as an informal suggestion for future rulemaking action.

How Can I Read the Comments Submitted By Other People?

You may read the materials placed in the docket for this document (e.g., the comments submitted in response to this document by other interested persons) at any time by going to *http://www.regulations.gov.* Follow the online instructions for accessing the dockets.

[16] *See* 49 CFR 512.

You may also read the materials at the Docket Management Facility by going to the street address given above under **ADDRESSES.** The Docket Management Facility is open between 9 a.m. and 5 p.m. Eastern Time, Monday through Friday, except Federal holidays.

VI. Rulemaking Analyses and Notices

A. Executive Order 12866 and DOT Regulatory Policies and Procedures

NHTSA has considered the impact of this rulemaking action under Executive Order 12866 and the Department of Transportation's regulatory policies and procedures. The Office of Management and Budget reviewed this rulemaking document under E.O. 12866, ''Regulatory Planning and Review.'' This rulemaking action has been determined to be significant under Executive Order 12866 and the DOT Policies and Procedures because of Congressional and public interest.

Our current understanding of the benefits and costs of this rulemaking is set forth on the pages above.

NHTSA will prepare a Final Regulatory Impact Analysis (FRIA) describing the costs and benefits of this rulemaking action for the final rule. The FRIA will analyze alternatives considered by the agency and the final rule as issued, and will reflect consideration of comments addressing costs and benefits. The agency invites comments concerning how the alternatives to the proposal discussed in today's document could affect costs and benefits.

B. Privacy Act

Anyone is able to search the electronic form of all comments received into any of our dockets by the name of the individual submitting the comment (or signing the comment, if submitted on behalf of an association, business, labor union, etc.). You may review DOT's complete Privacy Act Statement in the **Federal Register** published on April 11, 2000 (Volume 65, Number 70; Pages 19477–78) or you may visit *http://docketsinfo.dot.gov/.*

Rulemaking Analyses and Notices

In the August 2005 NPRM, the agency discussed relevant requirements related to the Regulatory Flexibility Act, the National Environmental Policy Act, Executive Order 13132 (Federalism), the Unfunded Mandates Act, Civil Justice Reform, the National Technology Transfer and Advancement Act, and the Paperwork Reduction Act. The variations in the proposal discussed in this document do not affect the agency's analyses in those areas. NHTSA will address comments in these areas in connection with the final rule.

VII. Proposed Regulatory Text

List of Subjects in 49 CFR Part 571

Motor vehicle safety, Tires.

In consideration of the foregoing, NHTSA proposes to amend 49 CFR part 571 as follows:

PART 571—[AMENDED]

1. The authority citation of Part 571 continues to read as follows:

Authority: 49 U.S.C. 322, 30111, 30115, 30166 and 30177; delegation of authority at 49 CFR 1.50.

Alternative 1 (Two-Sided Test)

2. Amend § 571.216 by:

a. Revising S3 to read as set forth below;

b. Adding to S4, in alphabetical order, new definitions of ''Convertible'' and ''Roof component;''

c. Revising S5 to read as set forth below;

d. Removing S5.1;

e. Revising S7.1 through S7.6 to read as set forth below;

f. Adding S7.7 to read as set forth below; and

g. Removing S8 through S8.4.

The revisions and additions read as follows:

§ 571.216 Standard No. 216; Roof crush resistance.

* * * * *

S3. *Application.* This standard applies to passenger cars, and to multipurpose passenger vehicles, trucks and buses with a GVWR of 4,536 kilograms (10,000 pounds) or less. However, it does not apply to—

(a) School buses;

(b) Vehicles that conform to the rollover test requirements (S5.3) of Standard No. 208 (§ 571.208) by means that require no action by vehicle occupants;

(c) Convertibles, except for optional compliance with the standard as an alternative to the rollover test requirement (S5.3) of Standard No. 208; or

(d) Vehicles manufactured in two or more stages, other than chassis cabs, that conform to the roof crush requirements (S4) of Standard No. 220 (§ 571.220).

S4. *Definitions.*

* * * * *

Convertible means a vehicle whose A-pillars are not joined with the B-pillars (or rearmost pillars) by a fixed, rigid structural member.

* * * * *

Roof component means the A-pillar, B-pillar, roof side rail, front header, rear

header, roof, and all interior trim in contact with these components.

* * * * *

S5. *Requirements.* When the test device described in S6 is used to apply a force to a vehicle's roof in accordance with S7, first to one side of the roof and then to the other side of the roof, no roof component or portion of the test device may contact the head or the neck of the seated Hybrid III 50th percentile male dummy specified in 49 CFR Part 572, Subpart E. The maximum applied force in Newtons is any value up to and including 2.5 times the unloaded vehicle weight of the vehicle, measured in kilograms and multiplied by 9.8.

* * * * *

S7.1 Secure the vehicle in accordance with S7.1(a) through (d).

(a) Support the vehicle off its suspension at a longitudinal vehicle attitude of 0 degrees ± 0.5 degrees. Measure the longitudinal vehicle attitude along both the driver and passenger sill. Determine the lateral vehicle attitude by measuring the vertical distance between a level surface and a standard reference point on the bottom of the driver and passenger side sills. The difference between the vertical distance measured on the driver side and the passenger side sills shall not exceed ± 1 cm.

(b) Secure the vehicle with four stands. The locations for supporting the vehicle are defined in S7.1(c) or (d). Welding is permissible. The vehicle overhangs are not supported. Chains and wire rope are not used to secure the vehicle. Fix all non-rigid body mounts to prevent motion of the body relative to the frame. Close all windows, close and lock all doors, and secure any moveable or removable roof structure in place over the occupant compartment. Remove roof racks or other non-structural components.

(c) For vehicles with manufacturer's designated jacking locations, locate the stands at or near the specified location.

(d) For vehicles with undefined jacking locations, generalized jacking areas, or jacking areas that are not part of the vehicle body or frame, such as axles or suspension members, locate two stands in the region forward of the rearmost axle and two stands rearward of the forwardmost axle. All four stands shall be located between the axles on either the vehicle body or vehicle frame.

S7.2 (a) Adjust the seats and steering controls in accordance with S8.1.2 and S.8.1.4 of 49 CFR 571.208.

(b) Place adjustable seat backs in the manufacturer's nominal design riding position in the manner specified by the manufacturer. Place any adjustable anchorages at the manufacturer's nominal design position for a 50th percentile adult male occupant. Place each adjustable head restraint in its lowest adjustment position. Adjustable lumbar supports are positioned so that the lumbar support is in its lowest adjustment position.

S7.3 Position the Hybrid III 50th percentile male dummy specified in 49 CFR Part 572, Subpart E in accordance with S10.1 through S10.6.2.2 of 49 CFR 571.208, in the front outboard designated seating position on the side of the vehicle being tested.

S7.4 Orient the test device as shown in Figure 1 of this section, so that—

(a) Its longitudinal axis is at a forward angle (in side view) of 5 degrees below the horizontal, and is parallel to the vertical plane through the vehicle's longitudinal centerline;

(b) Its transverse axis is at an outboard angle, in the front view projection, of 25 degrees below the horizontal.

S7.5 Maintaining the orientation specified in S7.4—

(a) Lower the test device until it initially makes contact with the roof of the vehicle.

(b) Position the test device so that—

(1) The longitudinal centerline on its lower surface is within 10 mm of the initial point of contact, or on the center of the initial contact area, with the roof; and

(2) The midpoint of the forward edge of the lower surface of the test device is within 10 mm of the transverse vertical plane 254 mm forward of the forwardmost point on the exterior surface of the roof, including windshield trim, that lies in the longitudinal vertical plane passing through the vehicle's longitudinal centerline.

S7.6 Apply force so that the test device moves in a downward direction perpendicular to the lower surface of the test device at a rate of not more than 13 millimeters per second until reaching the force level specified in S5. Guide the test device so that throughout the test it moves, without rotation, in a straight line with its lower surface oriented as specified in S7.4(a) and S7.4(b). Complete the test within 120 seconds.

S7.7 Repeat the test on the other side of the vehicle.

* * * * *

Alternative 2 (Single-Sided Test)

3. Amend § 571.216 by:

a. Revising S3 to read as set forth below;

b. Adding to S4, in alphabetical order, new definitions of ''Convertible'' and ''Roof component;''

c. Revising S5 to read as set forth below;

d. Removing S5.1;

e. Revising S7.1 through S7.6 to read as set forth below; and

f. Removing S8 through S8.4.

The revisions and additions read as follows:

§ 571.216 Standard No. 216; Roof crush resistance.

* * * * *

S3. *Application.* This standard applies to passenger cars, and to multipurpose passenger vehicles, trucks and buses with a GVWR of 4,536 kilograms (10,000 pounds) or less. However, it does not apply to—

(a) School buses;

(b) Vehicles that conform to the rollover test requirements (S5.3) of Standard No. 208 (§ 571.208) by means that require no action by vehicle occupants;

(c) *Convertibles*, except for optional compliance with the standard as an alternative to the rollover test requirement (S5.3) of Standard No. 208; or

(d) Vehicles manufactured in two or more stages, other than chassis cabs, that conform to the roof crush requirements (S4) of Standard No. 220 (§ 571.220).

S4. *Definitions.*

* * * * *

Convertible means a vehicle whose A-pillars are not joined with the B-pillars (or rearmost pillars) by a fixed, rigid structural member.

* * * * *

Roof component means the A-pillar, B-pillar, roof side rail, front header, rear header, roof, and all interior trim in contact with these components.

* * * * *

S5. *Requirements.* When the test device described in S6 is used to apply a force to a vehicle's roof in accordance with S7, no roof component or portion of the test device may contact the head or the neck of the seated Hybrid III 50th percentile male dummy specified in 49 CFR Part 572, Subpart E. The maximum applied force in Newtons is any value up to and including 2.5 times the unloaded vehicle weight of the vehicle, measured in kilograms and multiplied by 9.8. A particular vehicle need not meet the requirements on the second side of the vehicle, after being tested at one location.

* * * * *

S7.1 Secure the vehicle in accordance with S7.1(a) through (d).

(a) Support the vehicle off its suspension at a longitudinal vehicle attitude of 0 degrees ± 0.5 degrees.

Measure the longitudinal vehicle attitude along both the driver and passenger sill. Determine the lateral vehicle attitude by measuring the vertical distance between a level surface and a standard reference point on the bottom of the driver and passenger side sills. The difference between the vertical distance measured on the driver side and the passenger side sills shall not exceed ± 1 cm.

(b) Secure the vehicle with four stands. The locations for supporting the vehicle are defined in S7.1(c) or (d). Welding is permissible. The vehicle overhangs are not supported. Chains and wire rope are not used to secure the vehicle. Fix all non-rigid body mounts to prevent motion of the body relative to the frame. Close all windows, close and lock all doors, and secure any moveable or removable roof structure in place over the occupant compartment. Remove roof racks or other non-structural components.

(c) For vehicles with manufacturer's designated jacking locations, locate the stands at or near the specified location.

(d) For vehicles with undefined jacking locations, generalized jacking areas, or jacking areas that are not part of the vehicle body or frame, such as axles or suspension members, locate two stands in the region forward of the rearmost axle and two stands rearward of the forwardmost axle. All four stands shall be located between the axles on either the vehicle body or vehicle frame.

S7.2 (a) Adjust the seats and steering controls in accordance with S8.1.2 and S.8.1.4 of 49 CFR 571.208.

(b) Place adjustable seat backs in the manufacturer's nominal design riding position in the manner specified by the manufacturer. Place any adjustable anchorages at the manufacturer's nominal design position for a 50th percentile adult male occupant. Place each adjustable head restraint in its lowest adjustment position. Adjustable lumbar supports are positioned so that the lumbar support is in its lowest adjustment position.

S7.3 Position the Hybrid III 50th percentile male dummy specified in 49 CFR Part 572, Subpart E in accordance with S10.1 through S10.6.2.2 of 49 CFR 571.208, in the front outboard designated seating position on the side of the vehicle being tested.

S7.4 Orient the test device as shown in Figure 1 of this section, so that—

(a) Its longitudinal axis is at a forward angle (in side view) of 5 degrees below the horizontal, and is parallel to the vertical plane through the vehicle's longitudinal centerline;

(b) Its transverse axis is at an outboard angle, in the front view projection, of 25 degrees below the horizontal.

S7.5 Maintaining the orientation specified in S7.4—

(a) Lower the test device until it initially makes contact with the roof of the vehicle.

(b) Position the test device so that—

(1) The longitudinal centerline on its lower surface is within 10 mm of the initial point of contact, or on the center of the initial contact area, with the roof; and

(2) The midpoint of the forward edge of the lower surface of the test device is within 10 mm of the transverse vertical plane 254 mm forward of the forwardmost point on the exterior surface of the roof, including windshield trim, that lies in the longitudinal vertical plane passing through the vehicle's longitudinal centerline.

S7.6 Apply force so that the test device moves in a downward direction perpendicular to the lower surface of the test device at a rate of not more than 13 millimeters per second until reaching the force level specified in S5. Guide the test device so that throughout the test it moves, without rotation, in a straight line with its lower surface oriented as specified in S7.4(a) and S7.4(b). Complete the test within 120 seconds.

* * * * *

Issued: January 24, 2008.

Stephen R. Kratzke,

Associate Administrator for Rulemaking.

[FR Doc. 08–392 Filed 1–25–08; 12:22 pm]

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